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POSTIMPLEMENTATION EVALUATION PLAN  
FOR THE PATIENT APPOINTMENT AND SCHEDULING SYSTEM  
AT USAF MEDICAL CENTER, KEESLER AIR FORCE BASE

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September 26, 1983

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Final Report for Period 2/15/82 to 9/26/83

Prepared for:

TRIMIS PROGRAM OFFICE  
5401 Westbard Avenue  
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) ✓ This report contains the objectives and the complete methodology of a plan for evaluating the performance of the Tri-Service Patient Appointment and Scheduling (TRIPAS) System at Keesler Air Force Base. The methodology corresponds to that planned and executed in the baseline (nonautomated) performance of patient appointment and scheduling activities at Keesler.		

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## I. INTRODUCTION

### A. EVALUATION OBJECTIVES

In February 1983, an automated Tri-Service Patient Appointment and Scheduling (TRIPAS) System (initial capability) replaced the manual appointment system at the USAF Medical Center, Keesler Air Force Base (Keesler), Biloxi, Mississippi. This installation was carried out as part of a contract from the Tri-Service Medical Information Systems (TRIMIS) Program Office (TPO). The experience with the implementation of this system is being evaluated in order to provide TPO with information concerning the costs and benefits of providing automated support to patient appointment and scheduling in Military Treatment Facilities (MTFs).

The purpose of this overall evaluation effort, both baseline (manual system) and postimplementation (automated system), is to assess:

- Performance and impact of the TRIPAS System; and
- Desirable improvements in the TRIPAS System.

The impact of the TRIPAS System is measured by documenting changes in the performance of the appointment and scheduling system between the baseline and postimplementation periods (see refs. 3, 6). The comparison is accomplished both by measurement of performance indicators and by qualitative assessment of patient and staff perceptions and acceptance of the system. Results are used to determine to what extent the TRIPAS System has met or exceeded user expectations and goals, and to provide data useful in revising the economic analysis of the system. Also, the evaluation results will be used to identify system and operational changes that would lead to realizing additional benefits from system use.

The overall objective of the TRIMIS Program Office in funding this evaluation is to provide accurate information concerning the TRIPAS System's costs and benefits. This information is used to make decisions regarding future appointment and scheduling applications.

The evaluation of the manual and automated patient appointment and scheduling systems at Keesler is being documented in the following sequence:

- A preliminary economic analysis was performed by the TRIMIS Program Office (1).
- A plan for conducting baseline data collection and analysis was prepared (2).
- Analysis of the baseline (manual system) results was presented in a report (3).
- Following installation, the implementation of the TRIPAS System was monitored until it was deemed ready for a postimplementation evaluation. An Interim Status Report on implementation status was submitted to TPO (4).
- A plan for conducting data collection and analysis in the postimplementation period was drafted (5).
- Results of data collection for the automated period, along with a comparison of results from the two periods, were presented (6).
- The final, updated Economic Analysis was presented in draft form on September 15, 1983 (7).

This report presents the plan for data collection in the postimplementation period, revised in accordance with the results of the data analysis.

#### B. SETTING

USAF Medical Center Keesler is designated as an area medical and referral center, providing health care to beneficiaries residing throughout the southeastern region of the United States. To accomplish this mission, the medical center currently operates a 325-bed

medical treatment facility, a 50-bed aeromedical staging flight, a 78-room dental treatment facility, and 40 outpatient clinics. The medical center includes approximately 325 officers, 800 enlisted personnel, and 230 civilians. In addition, an average of 105 officers and 30 enlisted personnel are assigned to the Center for specialized training.

Representative average monthly volumes at this facility include 950 inpatient admissions, 34,300 outpatient visits, and 2,250 dental visits.

#### C. TRIPAS SYSTEM AT KEESLER AFB

The Tri-Service Patient Appointment and Scheduling System provides state-of-the-art automated support to clinic appointment scheduling. The functions supported include booking, cancelling and verifying appointments; monitoring provider schedules; maintaining the registration data; generating medical record pull lists; and generating reports.

TRIPAS is an adaptation of an automated patient appointment system, the software for which was developed by Medical Data Corporation and acquired by HBO of Atlanta, Georgia. Martin Marietta, of Bethesda, Maryland, is the prime contractor, with HBO the subcontractor responsible for developing and supporting system software. TRIPAS software is written in standard MUMPS.

There are three sizes of CPU hardware configuration: large, medium, and small. Keesler received the large configuration, which includes 1 Central Processing Unit (CPU), 1 Line Printer, 20 Character Printers, 66 Cathode Ray Tube (CRT) terminals, and 2 Automated Embossing Machines.



Seven CRTs are located in the Central Appointment Section (CAS), and most outpatient clinics have at least one terminal. The CPU is housed in a specially secured and air conditioned computer room that also houses the CPUs for the TRIPAD and TRIPHARM Systems and will house the TRILAB and CAPOC Systems' CPUs.

#### D. ORGANIZATION OF THE REPORT

This report consists of two major sections, including this Introduction. The second section discusses the methodology proposed for the postimplementation evaluation of the TRIPAS system at Keesler. It is divided into four sections: approach, data collection, data analysis, and schedule.

References follow the methodology section. Data collection instruments proposed to be used for this evaluation are included as an appendix to the report.

## II. METHODOLOGY

### A. APPROACH

The overall evaluation of the TRIPAS System is a "before and after" study of the impact of TRIPAS on the effectiveness and cost of outpatient appointment and scheduling services at Keesler. In addition to the assessment at Keesler, focused evaluations have been conducted at Brooke Army Medical Center and Ehrling Bergquist USAF Regional Hospital to assess preliminary indicators of the functional performance and impact of the TRIPAS System and to identify additional potential impacts (8). The evaluation at Keesler adheres to the methodology used at these two previous sites. The system's implementation was monitored during a site visit (April 11-12, 1983); interviews were conducted with Keesler staff, before and 2 months after the system was implemented. These assessments led to the identification of the following anticipated impacts of TRIPAS on appointment and scheduling operations at Keesler:

- Increased availability of appointments;
- Reduction in the time required to make, change, verify, or cancel an appointment;
- Reduced waiting times within clinics, and in the time period from initial entry into the medical care system to diagnosis and treatment in the appropriate clinic;
- Increased availability of medical records and x-rays;
- Reduction in the number of patients who miss their appointments;
- Increased patient and staff satisfaction with the appointment and scheduling system;
- Optimization of care provider productivity;
- Reduction in the effort required to make or change provider schedules;

- Reduction in appointment transcription and processing errors;
- Reduced cost per appointment transaction and outpatient visit;
- Increased ability to accommodate same-day multiple-clinic appointments; and
- Enhanced generation of useful management reports.

These areas of projected impact are intended to be responsive to the goals and objectives of the TRIPAS System as set forth by the TRIMIS Medical Review Group (Exhibit 1). From these likely impacts, a set of performance criteria have been established (Exhibit 2). At the time of the implementation monitoring visit in April 1983, it was determined that 13 of these 19 criteria had been met, and the system was considered to be ready for postimplementation evaluation.

The evaluation focuses on these impacts. In addition to the operation of the Central Appointment Section (CAS), five outpatient clinics were selected for study: two that use CAS to make appointments and three that book their own appointments. In one of the latter, the Dental Clinic, only provider and patient levels of satisfaction are assessed. The appointment process, clinic workload, and number of assigned providers are detailed as follows (10):

<u>Process and Clinic</u>	<u>Total Annual Outpatient Visits</u>	<u>Number of As- signed Providers</u>
Uses CAS:		
Primary Care (PC)	51,000	15
Internal Medicine (IM)	8,000	45
Books Own Appointments:		
General Surgery (GS)	29,100	25
Orthopedics (O)	13,200	5
Dental (D)	26,400	22

## EXHIBIT 1

### TRIPAS SYSTEM GOALS AND OBJECTIVES

1. Reduced time to make a patient appointment.
2. Reduced clinic waiting time.
3. Reduced trips to receive care in multiple clinics.
4. Reduced appointment clerical work.
5. Increased utilization by better matching patients, providers, facilities.
6. Reduced "no-shows."
7. Reduced appointment transcription and processing errors.
8. Improved interfacility communication.
9. Enhanced decision making.
10. Establishment of a data bank.

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SOURCE: TRIMIS Medical Review Group, Initial Project Objectives and Evaluation Criteria, TRIMIS Program Office, Bethesda, Maryland, April 1978.

## EXHIBIT 2

### TRIPAS SYSTEM PERFORMANCE CRITERIA

#### A. System Operation/Structure

1. TRIPAS Uptime
2. Clerks and Technicians Trained
3. Terminals in Use
4. Printers in Use
5. Patient Population Registered
6. Provider Schedules Loaded
7. Pre-existing Appointments Loaded

#### B. System Use/Process

8. Clerks and Technicians Experienced in TRIPAS Use
9. Users Meeting Operational Standards for Quality
10. Users Meeting Operational Standards for Time
11. Use of Software Modules, Options, and Functions
12. Manual Tasks Supported by Software Modules, Options, and Functions

#### C. System Benefits/Outcome

13. Clerk and Technician Productivity I (seconds/transaction)
14. Clerk and Technician Productivity II (transactions/hour)
15. Average Waiting Time for Telephone To Be Answered (Peak Time)
16. Clinic No-Shows
17. Satisfaction with TRIPAS System Performance (Staff)
18. Satisfaction with Appointment and Scheduling System (Patients)
19. Satisfaction with TRIPAS Reports and Products (Supervisors and NCOIC's)

The study clinics have been selected on the basis of their scheduling methods and the volume of patients, especially active-duty personnel, seen. Though the evaluation at Keesler involves a sample of all patients who use the clinics under study, particular attention is given to the impact of TRIPAS on appointment and scheduling activities for active-duty personnel, since time savings among active-duty personnel results in direct benefit to the DoD.

The proposed study design will reveal the effect of TRIPAS on patient appointment and scheduling activities, particularly on CAS and clinic productivity, scheduling efficiency, and impact of improved scheduling on provider productivity. The study will also track the continuity of patient care from primary entry through specialized clinic responses.

The impact areas that will be examined, the measurement techniques, the sites of data collection, and the observation periods are displayed in Exhibit 3. Sample sizes are designed to detect changes in performance that are statistically significant at 0.05. The amount of data collected for each impact area and site within Keesler matches the amount of data (sample sizes) collected during the baseline period.

In order to optimize the use of data collection time and personnel, data will be collected at each of the four sample clinics and CAS at the same time, for 10 days each. Clinic and CAS data will be collected by sampling approximately 10 calls per hour at each location.

#### B. DATA COLLECTION

NCSI personnel and on-site data collectors will monitor appointment activities for 10 working days in the Central Appointments desk and in four clinics: Primary Care, Internal Medicine, Orthopedics, and General Surgery. (The Dental Clinic will be surveyed

# EXHIBIT 3

## OVERVIEW OF METHODS FOR TRIPAS EVALUATION, USAF MEDICAL CENTER, KEESLER AFB

Impact Area	Measurement Technique	Site	Observation Period
Total time per appt. transaction:			
a. Time/transaction	Time study	CAS, 2 sample clinics	10 days/location
b. Response to calls	Telephone monitoring equip't.	CAS	10 days/location
Outpatient waiting time	Time study	4 sample clinics	10 days/clinic
Clinic referrals	Survey questionnaire	2 sample clinics	NA
CAS workload	Log; statistical repts.	CAS	10 days
Provider productivity	Survey questionnaire	4 sample clinics	10 days/clinic
Clinic workload:			
a. Number of scheduled appts.	Log	4 sample clinics	10 days/clinic
b. Number of walk-ins	Log	4 sample clinics	10 days/clinic
c. Number of cancellations	Log	4 sample clinics	10 days/clinic
d. Number of no-shows	Log	4 sample clinics	10 days/clinic
e. Availability of medical records	Survey questionnaire	4 sample clinics	10 days/clinic
f. Availability of x-rays	Survey questionnaire	4 sample clinics	10 days/clinic
No. transcription errors/appt. list	Log	4 sample clinics	10 days/clinic
Patient perception of scheduling system	Survey questionnaire	4 sample clinics plus Dental	10 days/clinic (2 days/Dental)
Staff perception of scheduling system:			
a. Telephone clerks and receptionists	Survey questionnaire	CAS, 4 sample clinics	NA
b. Providers	Survey questionnaire	5 sample clinics	NA
c. Supervisors and administrators	Interviews	CAS; sample clinics (5 base, 4 post); ADM & PA; MR	NA
Cost of scheduling system	Audit of hospital and TPO reports	Hospital; TPO	NA

NOTE: This table has been organized to correspond with TRIMIS goals (see Exhibit 1).  
 KEY: 4 sample clinics = Primary Care, Internal Medicine, Orthopedics, General Surgery.  
 2 sample clinics = General Surgery, Orthopedics (those booking own appointments).  
 ADM = Hospital Administration; PA = Patient Affairs; MR = Medical Records.

over two working days, with questionnaires administered to providers and patients.) All data will be recorded by evaluation team members or hired data collectors, with the exception of cost data, which will be obtained from the TRIPAS contract, and reports concerning availability of clinic appointments, which will be obtained from existing hospital reports. Prior to postimplementation data collection, on-site data collectors will be briefed by NCSI staff on data collection procedures, given a demonstration, and then checked for proficiency and accuracy as they perform the data collection tasks. The same four data collectors used in the baseline evaluation will collect data in the postimplementation period. Each of these collectors is a Red Cross volunteer at Keesler and is thoroughly familiar with hospital operations.

The rest of this section on data collection will consider the potential impacts of the TRIPAS System individually and will examine measurement techniques to be employed. Copies of all data collection instruments referred to in this section are found in the Appendix.

#### 1. Total Time per Appointment Transaction

In order to measure the amount of time spent in the appointment and scheduling process, timed observations of appointment activities will be performed. The time required to complete appointment-related phone transactions will be measured, as will the amount of time required to reach a CAS clerk on the telephone. Data collectors will randomly time telephone calls to CAS and two clinics that book their own appointments (General Surgery and Orthopedics) using the Telephone Interaction Time survey instrument. Ten calls per hour will be timed in CAS, and at least 5 per hour in the clinics, for a period of 10 days. Measurement of the queue to reach a clerk in CAS will be accomplished by use of the automated telephone monitoring system, which permits the supervisor of CAS to assess the number of callers in the queue and the amount of time the next caller to be answered has



been waiting. Data collectors will query the telephone monitoring equipment once every half-hour from 0730 to 1600 for a 10-day period and will record the information on the CAS Queue Record.

## 2. Outpatient Waiting Time

The Outpatient Waiting Time Record will be distributed in the four sample clinics: Internal Medicine, Primary Care, General Surgery, and Orthopedics. The questionnaire is self-administering and records the time that a patient arrives, the scheduled time of the appointment, and the time that the patient is actually seen by a health care provider. The questionnaire will be distributed in each clinic at a rate of 12-15 per day for 10 days in order to collect a total of 125.

## 3. Clinic Referrals

Data collectors will administer the Patient Tracking Form in the General Surgery and Orthopedic clinics in order to assess the specialty clinic referral process. The Patient Tracking Form consists of a brief interview covering items such as the time required to be booked and seen in the clinic after contact with Primary Care as well as patient satisfaction with the process. Approximately 30 questionnaires will be collected in each of the two clinics, divided equally between active and non-active duty patients. The fact that patients will be tracked continually, from their initial entry into the medical care system to their diagnosis and treatment in the appropriate referral clinic, will facilitate the assessment of the availability of appointments and physicians.

## 4. CAS Workload

Two measures will help determine the CAS workload. A log (Telephone Log) kept by each CAS clerk will record all information calls and appointment-unavailable calls. These data will

be combined with TRIPAS statistical reports that show the number of appointments booked and appointments cancelled by each clerk in order to calculate the total transaction workload. Data will be collected for 10 days.

#### 5. Provider Productivity

The Provider Productivity Record will be given to eight doctors, two for each sample clinic, in order to assess the rate of patient/provider encounters. The form will be completed by non-resident doctors who regularly see most of their patients in the sample clinic. By recording the number of patients seen and the amount of time available to each doctor to see clinic patients, the degree of service utilization will be measured.

#### 6. Clinic Workload

In order to determine quantitative information for clinic workloads, each of the four sample clinics will be monitored for 10 days concurrently using the Daily Clinic Record. This form will be completed by clinic personnel, with help from data collectors, and will record all scheduled appointments, walk-ins, cancellations, and no-shows. Availability of medical records and x-rays will also be measured. The aforementioned Patient Waiting Time Record collects data on the availability of medical records and x-rays in addition to waiting time data.

#### 7. Number of Transcription Errors

The number of transcription errors made on appointment lists will be kept on the Daily Clinic Record for 10 days in the four sample clinics. Transcription errors will be counted when a patient arrives for an appointment who is not recorded in the proper slot on the appointment list.

#### 8. Patient Perception of Scheduling System

Data collectors will distribute self-administering questionnaires to patients in order to gather data on patient opinions of the appointment and scheduling system. The Outpatient Questionnaire asks for objective information concerning the patient's experience with the appointment system in addition to a section on patient satisfaction with the various aspects of the system. The Outpatient Questionnaire will be distributed in the four sample clinics at the rate of 12-15 per day for 10 days. An abbreviated form (Patient Questionnaire, Dental Clinic) including only satisfaction ratings will be given to 100 patients during 2 days at the Keesler Dental Clinic.

#### 9. Staff Perception of Scheduling System

Surveys (questionnaires and interviews) of patients, care providers, appointment scheduling and support staff, and administrators will be used to measure satisfaction with automated services. The surveys will contain closed-end questions concerning satisfaction with various aspects of the appointment and scheduling system and closed-end questions concerning performance of the system.

a. Telephone clerks and receptionists. The Appointment and Scheduling Support Staff Questionnaire will be administered to all appointment clerks in CAS and the four sample clinics.

b. Providers. The Health Care Provider Questionnaire will be administered to all providers in the four sample clinics and in the dental clinic. A Provider Interview Form will be used to solicit opinions from two providers at each sample clinic in regard to TRIPAS System impact.

c. Supervisors and administrators. Supervisory and administrative personnel will be interviewed in several locations: CAS, four sample clinics, Hospital Administration (ADM) and Patient

Affairs (PA), and Medical Records. At least one individual responsible for each location will be interviewed about the TRIPAS System reports they receive.

#### 10. Cost of Scheduling System

In the postimplementation period, a review of (1) Keesler financial records of personnel and their salaries, of equipment and supplies, and of base overhead support, and (2) TRIPAS System procurement costs will provide cost data from which the cost per unit of workload (cost per appointment,<sup>4</sup> cost per appointment transaction) will be determined.

#### C. ANALYSIS

Analysis of the data will be of two general types:

- Comparisons of postimplementation results with baseline results for the same impact; and
- Comparisons of baseline and postimplementation results with performance goals set by Keesler staff, and with system goals and objectives set by the Medical Review Group.

For both types of analysis, quantified baseline and postimplementation results will be presented side by side and improvement or deterioration in performance discussed. Results will be analyzed for each clinic and CAS as well as aggregated for all clinics. In general, impacts will be clustered in one of five sections of this report:

- Requesting an appointment;
- Being scheduling for an appointment;
- Having the medical records located and sent to the appropriate clinic;

- Receiving care at the appointed time; or
- Cost of appointment and scheduling operations.

So that results can be understood and interpreted in the context of Keesler operations, each of these sections will contain a description of the process; quantified time- and workload-related measurements; care provider, appointment staff, and patient opinions; and lastly, conclusions drawn from the results obtained.

Where the differences between observation periods require interpretation, statistical tests (chi-square, t-tests) will be performed to assess the significance of differences between performance periods. Differences in average clinic waiting time to see a care provider, for example, will be considered significant if the probability of the difference occurring by chance is less than one in twenty ( $p < 0.05$ ). The data compared for quantified impacts, in general, will involve stratified means and standard deviations.

Questionnaire data will be keypunched, edited, and analyzed using a standard statistical computer program. A Likert scale will be used to convert responses concerning importance of and satisfaction with the appointment system into mean ratings.

The performance goals defined by Keesler staff are set for three levels:

- Minimum acceptable.
- Average expected.
- Maximum attainable.

Comparison of baseline and postimplementation results with these levels of anticipated performance (as determined in a provider survey) will allow an assessment of how well the TRIPAS System meets user expectations. For example, in the baseline period 62% of care providers expressed satisfaction with the overall quality of appointment and scheduling services. They also felt that 56% was the minimum acceptable goal for care provider satisfaction and that 75%

was the average expected value. If this figure is greater than 75% in the postimplementation period, then it can be concluded that the TRIPAS System has improved satisfaction of care providers past the average level they expect for appointment and scheduling operations. These analyses provide a second method of interpreting the significance of changes in performance between the manual and automated system. (Performance goals have been established for about one-third of the TRIPAS impacts that will be assessed.)

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9. TRIMIS Medical Review Group. Initial Project Objectives and Evaluation Criteria. TRIMIS Program Office, Bethesda, Maryland, April 1978.
10. Survey of clinic workload statistics conducted by Keesler hospital services.

APPENDIX:

DATA COLLECTION INSTRUMENTS

Outpatient Questionnaire	A-1
Patient Questionnaire, Dental Clinic	A-4
CAS Queue Record	A-5
Telephone Interaction Queue Time	A-6
Daily Clinic Record	A-7
Patient Waiting Time Record	A-8
Telephone Log	A-9
Health Care Provider Questionnaire	A-10
Appointment and Scheduling Support Staff Questionnaire	A-14
Phone Consult Record	A-17
Provider Productivity Record	A-18
Provider Interview Form	A-19
Patient Tracking Form	A-21



OUTPATIENT QUESTIONNAIRE

Clinic \_\_\_\_\_  
Date \_\_\_\_\_  
Time \_\_\_\_\_

We ask you to take a few minutes to answer some questions about our patient care and the appointment scheduling system here. Information from this questionnaire will help us provide the best possible medical care. All responses will be held in strictest confidence.

1. Is this your first visit to this clinic? (check one)
  1. \_\_\_\_\_ yes
  2. \_\_\_\_\_ no
  3. \_\_\_\_\_ can't remember
2. How would you describe your need for this appointment? (check one)
  1. \_\_\_\_\_ emergency (needed to be seen on same day)
  2. \_\_\_\_\_ semi-urgent (needed to be seen within a few days)
  3. \_\_\_\_\_ routine (next available appointment, within 14 days)
3. Please check the appropriate category for your appointment. (check one)
  1. \_\_\_\_\_ scheduled appointment
  2. \_\_\_\_\_ unscheduled; but someone referred me (check one)
    1. \_\_\_\_\_ Emergency Room
    2. \_\_\_\_\_ another clinic
    3. \_\_\_\_\_ other, please specify: \_\_\_\_\_
  3. \_\_\_\_\_ unscheduled; I tried to make an appointment myself, but could not get one
  4. \_\_\_\_\_ unscheduled; did not try to make an appointment; was not referred

WALK-IN PATIENTS SKIP TO QUESTION 9.

FOR PATIENTS WITH SCHEDULED APPOINTMENTS:

4. How long ago did you schedule your appointment?
  1. \_\_\_\_\_ today
  2. \_\_\_\_\_ 1-2 days
  3. \_\_\_\_\_ 3-7 days
  4. \_\_\_\_\_ 8-14 days
  5. \_\_\_\_\_ 15-30 days
  6. \_\_\_\_\_ over 30 days
5. Would you have liked an appointment sooner than you were able to schedule one?
  1. \_\_\_\_\_ yes
  2. \_\_\_\_\_ no      How much sooner? \_\_\_\_\_
6. How did you schedule this appointment? (check one)
  1. \_\_\_\_\_ through central appointment scheduling (CAS)
  2. \_\_\_\_\_ through the clinic

7. By what means did you schedule it? (check one)

1. \_\_\_\_\_ by CAS phone-on post (in clinic areas)
2. \_\_\_\_\_ by another phone
3. \_\_\_\_\_ by mail
4. \_\_\_\_\_ in person - at clinic desk
5. \_\_\_\_\_ other, please specify \_\_\_\_\_

8. If you made the appointment by telephone: How many attempts to call did you make before you got an appointment?

1. \_\_\_\_\_ 1 attempt (got through on first attempt)
2. \_\_\_\_\_ 2 attempts
3. \_\_\_\_\_ 3 attempts
4. \_\_\_\_\_ more than 3 attempts, specify how many \_\_\_\_\_
5. \_\_\_\_\_ can't remember

ALL PATIENTS

9. Do you have an appointment scheduled in another clinic for today?

1. \_\_\_\_\_ yes
2. \_\_\_\_\_ no

Would you have liked to schedule another appointment for today if this were possible?

1. \_\_\_\_\_ yes
2. \_\_\_\_\_ no

10. Were your records available for this visit to the clinic?

Medical Records: 1. \_\_\_\_\_ yes  
2. \_\_\_\_\_ no

X-Rays: 1. \_\_\_\_\_ yes  
2. \_\_\_\_\_ no

11. If either your medical records or your X-rays or both were available, please tell us where they were.

Medical Records: 1. \_\_\_\_\_ They were at the clinic when I arrived  
2. \_\_\_\_\_ I picked them up on my way here  
3. \_\_\_\_\_ I brought them with me from home

X-Rays: 1. \_\_\_\_\_ They were at the clinic when I arrived  
2. \_\_\_\_\_ I picked them up on my way here

12. Are you taking time off from work to come to this appointment?

1. \_\_\_\_\_ yes
2. \_\_\_\_\_ no

13. The following statements describe various aspects of the outpatient clinics at KMC. Please indicate how satisfied you are with each aspect by putting a check in the column that best describes your opinion.

Statements

	<u>Very satisfied</u> 1. _____	<u>Somewhat satisfied</u> 2. _____	<u>Undecided</u> 3. _____	<u>Not very satisfied</u> 4. _____	<u>Not at all satisfied</u> 5. _____
Ease of booking appointments.....					
Availability of appointments at time desired.....					
The telephone system for making appointments.....					
Special instructions for preparing for appointment.....					
Finding clinic location.....					
Parking.....					
Waiting time in clinic.....					
Availability of medical records.....					
Attitude and helpfulness of appointment personnel.....					
Appointment scheduling system in general.....					
Overall experience with care system.....					

15. Do you have any additional comments or suggestions?

16. Please indicate your status. (check one)

1. \_\_\_\_\_ Active duty military  
(military rank \_\_\_\_\_)
2. \_\_\_\_\_ Retired military
3. \_\_\_\_\_ Dependent of active duty military
4. \_\_\_\_\_ Dependent of retired/deceased
5. \_\_\_\_\_ Civilian personnel
6. \_\_\_\_\_ Other (please specify \_\_\_\_\_)

Thank you for taking the time to fill out this questionnaire.

PATIENT QUESTIONNAIRE  
DENTAL CLINIC

The following statements describe various aspects of the dental clinic at KMC. Please indicate how satisfied you are with each aspect by putting a check in the column that best describes your opinion.

Statements

	<u>Very satisfied</u> 1. _____	<u>Somewhat satisfied</u> 2. _____	<u>Undecided</u> 3. _____	<u>Not very satisfied</u> 4. _____	<u>Not at all satisfied</u> 5. _____
Ease of booking appointments.....					
Availability of appointments at time desired.....					
The telephone system for making appointments.....					
Special instructions for preparing for appointment.....					
Finding clinic location.....					
Parking.....					
Waiting time in clinic.....					
Availability of medical records.....					
Attitude and helpfulness of appointment personnel.....					
Appointment scheduling system in general.....					
Overall experience with care system.....					

42 4

44 4

Please indicate your status. (check one)

1. \_\_\_\_\_ Active duty military  
(military rank \_\_\_\_\_)
2. \_\_\_\_\_ Retired military
3. \_\_\_\_\_ Dependent of active duty military
4. \_\_\_\_\_ Dependent of retired/deceased
5. \_\_\_\_\_ Civilian personnel
6. \_\_\_\_\_ Other (please specify \_\_\_\_\_)

46 4

48 4

Thank you for taking the time to fill out this questionnaire.

# CAS QUEUE RECORD

Date \_\_\_\_\_

<u>Time</u>	<u># of calls in queue</u>	<u>waiting time of call to be answered next</u>
-------------	----------------------------	---

7:30		
8:00		
8:30		
9:00		
9:30		
10:00		
10:30		
11:00		
11:30		
12:00		
12:30		
1:00		
1:30		
2:00		
2:30		
3:00		
3:30		
4:00		
4:30		

### TELEPHONE INTERACTION QUEUE TIME

Day \_\_\_\_\_ Date \_\_\_\_\_

**Time** \_\_\_\_\_

[illegible]

## CLINIC:

A-7

# PATIENT WAITING TIME RECORD

                                                                
 Date Clinic Active Duty

Arrival Time                                       
 Appointment Time                                       
 Time when diagnosis/treatment begins                                     

           Appointed  
           Walk-in  
           Thought had appointment but not on schedule

Yes No

                      Medical record available at first  
 contact with appointment desk  
                      X-Ray available at first contact  
 with appointment desk



Telephone Log

Location:

CAS \_\_\_\_\_

Date:

Clinic (specify) \_\_\_\_\_

---

Appointments Booked: (count multiple appointments during same phone call as more than one)

Total: \_\_\_\_\_

---

Appointments Cancelled: (no rescheduling during phone call)

Total: \_\_\_\_\_

---

Appointments Rescheduled: (cancelled and rescheduled during phone call)

Total: \_\_\_\_\_

---

Appointments Requested but could not be booked: (not available or services not performed as requested)

Total: \_\_\_\_\_

---

Information Calls: (time, location, provider verified, other information transferred)

Total: \_\_\_\_\_

## HEALTH CARE PROVIDER QUESTIONNAIRE

1. Please write the month, day, and year of your birth. It will be used as an anonymous way to match your responses to surveys done before and after installation of the new patient appointment and scheduling system.

                      
month    day    year

(If you completed a questionnaire regarding the manual appointment and scheduling system, skip to question 6.)

2. What is the name of the outpatient clinic where you usually work?

\_\_\_\_\_

3. Do you work at other outpatient clinics on base?           1) yes           2) no

If yes, specify which one(s)?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. What functions, if any, do you perform related to appointment scheduling?  
Check all that apply.

       1) refer patients for appointments

       2) participate in establishing monthly appointment schedules

       3) make appointments for patients I am referring to other clinics

       4) other (specify) \_\_\_\_\_

       5) do not perform any functions related to patient appointment scheduling

5. In your view, how important is the patient appointment and scheduling system to the quality of care at KMC? Check one.

- \_\_\_\_\_ 1) very important
- \_\_\_\_\_ 2) important
- \_\_\_\_\_ 3) undecided, no opinion
- \_\_\_\_\_ 4) not very important
- \_\_\_\_\_ 5) not at all important

6. We would now like your opinion about the present appointment and scheduling system. For each of the following statements, please tell us how well the current system generally performs.

- a) Percent of care providers who express satisfaction with the overall quality of appointment and scheduling service. 1) \_\_\_\_\_ %
- b) Percent of scheduled patients who keep their appointments 2) \_\_\_\_\_ %
- c) Percent of scheduled patients who have X-rays available for their appointment. 3) \_\_\_\_\_ %
- d) Percent of scheduled patients who are appropriately scheduled at the outpatient clinic where you usually work. (This statement refers exclusively to clinical "appropriateness"). 4) \_\_\_\_\_ %
- e) Percent of scheduled patients who have a medical record available for their appointment. 5) \_\_\_\_\_ %

7. The following statements describe various aspects of the scheduling system. Please indicate how satisfied you are with each aspect of the current system by placing an "X" under the column that best describes your opinion.

	Very Satisfied	Somewhat Satisfied	Undecided/ No Opinion	Not Very Satisfied	Not at all Satisfied
a) Patient's ease of booking appointments.	1. _____	2. _____	3. _____	4. _____	5. _____
b) Patient's ability to book appointments at time desired.	1. _____	2. _____	3. _____	4. _____	5. _____
c) Waiting time after patient arrives.	1. _____	2. _____	3. _____	4. _____	5. _____
d) Availability of medical records at time of appointment at your clinic.	1. _____	2. _____	3. _____	4. _____	5. _____
e) Telephone system for making appointments.	1. _____	2. _____	3. _____	4. _____	5. _____
f) Availability of x-rays at time of appointment at your clinic.	1. _____	2. _____	3. _____	4. _____	5. _____
g) Accuracy of assigning patients to appropriate clinic.	1. _____	2. _____	3. _____	4. _____	5. _____
h) Ability of appointment and scheduling to accommodate:					
Flexible schedules	1. _____	2. _____	3. _____	4. _____	5. _____
Cancellations	1. _____	2. _____	3. _____	4. _____	5. _____
Changes in provider schedules	1. _____	2. _____	3. _____	4. _____	5. _____
Same day multiple clinic visits	1. _____	2. _____	3. _____	4. _____	5. _____

Special instructions that  
must be given to patients  
prior to their visits.

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

---

Patients requiring special  
processing and care.

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

---

Patients requiring  
immediate appoint-  
ments.

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

---

1) Overall quality  
of appointment and  
scheduling service.

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

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Thank you for your cooperation. Please return this questionnaire to the  
data collector.

1. Please write the month, day, and year of your birth. It will be used in an anonymous way to match your responses to surveys performed before and after installation of the new patient appointment and scheduling system.

(IF YOU COMPLETED A QUESTIONNAIRE REGARDING THE MANUAL SYSTEM,  
SKIP TO QUESTION 6.)

1.            CAS

         1) refer patients for appointments

2) participate in establishing monthly appointment schedule

       3) make patient appointments (by telephone or at the clinic)

4) verify (confirm) appointments

5) cancel appointments

6) do not perform any functions related to patient appointment scheduling

7) other (specify) \_\_\_\_\_

- 1) very important

2) somewhat important

       3) undecided, no opinion

4 4) not very important

5) not at all important

5. We would also like your opinions about how the present appointment and scheduling system performs. For each of the following measures of performance, please indicate how well you think the current system has done.

PERFORMANCE MEASURE

EVALUATION OF THE CURRENT  
APPOINTMENTS & SCHEDULING SYSTEM

- a) Percent of scheduling and support staff expressing satisfaction with the overall quality of appointment and scheduling service.

\_\_\_\_\_ %

- b) Percent of the scheduled patients who keep their appointments

\_\_\_\_\_ %

6. Please indicate how satisfied you are with each of the following aspects of the current appointment and scheduling system by placing an "x" under the column that best describes your opinion.

	Very Satisfied	Somewhat Satisfied	Undecided/ No opinion	Not Very Satisfied	Not at all Satisfied
a) Patients ease of booking appointments	1. _____	2. _____	3. _____	4. _____	5. _____
b) Patient's ability to book appointments at time desired.	1. _____	2. _____	3. _____	4. _____	5. _____
c) Telephone system for making appointments	1. _____	2. _____	3. _____	4. _____	5. _____
d) Ability of appointment and scheduling system to accommodate:					
1. Cancellations	1. _____	2. _____	3. _____	4. _____	5. _____
2. Changes in provider schedules	1. _____	2. _____	3. _____	4. _____	5. _____
3. Same day multiple clinic visits	1. _____	2. _____	3. _____	4. _____	5. _____
4. Special instructions that must be given to patients prior to their visits.	1. _____	2. _____	3. _____	4. _____	5. _____

	Very Satisfied	Somewhat Satisfied	Undecided/ No Opinion	Not Very Satisfied	Not at all Satisfied
5. Patients requiring immediate appointments	1. _____	2. _____	3. _____	4. _____	5. _____
6. Patients requiring special processing and care.	1. _____	2. _____	3. _____	4. _____	5. _____
7. Appointments which vary in length (e.g., 15 vs. 30 vs. 45 minutes).	1. _____	2. _____	3. _____	4. _____	5. _____
8. Ability of patients to obtain appointments by mail.	1. _____	2. _____	3. _____	4. _____	5. _____
e) Overall quality of appointment and scheduling service.	1. _____	2. _____	3. _____	4. _____	5. _____
f) Relative ease for you to accommodate:					
1. Appointing patients	1. _____	2. _____	3. _____	4. _____	5. _____
2. Cancelling appointments	1. _____	2. _____	3. _____	4. _____	5. _____
3. Rescheduling appointments	1. _____	2. _____	3. _____	4. _____	5. _____
4. Dispensing information to patients	1. _____	2. _____	3. _____	4. _____	5. _____



PROVIDER NAME \_\_\_\_\_

CLINIC \_\_\_\_\_

PHONE CONSULT RECORD

(Please check ( ) each time a phone consult is made)

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Date:

Phone Consults:

---

Date:

Phone Consults:

---

Date:

Phone Consults:

---

Date:

Phone Consults:

---

Date:

Phone Consults:

---

# PROVIDER PRODUCTIVITY RECORD

PROVIDER NAME \_\_\_\_\_

CLINIC \_\_\_\_\_

DATE	# Hrs. available to diagnose and treat outpatients at above clinic*	# of outpatients diagnosed and treated*

\* includes appointments, walk-ins and telephone consults

Clinic: \_\_\_\_\_

PROVIDER INTERVIEW FORM

1. During a typical work week, how many hours are you assigned to this clinic? \_\_\_\_\_
2. During this time, how many patients do you see per day and per week?

\_\_\_\_\_ Day

\_\_\_\_\_ Week

3. Of the patients seen by you, what percentage are appointed patients and what percentage are walk-ins?

\_\_\_\_\_ %  
Appointed

\_\_\_\_\_ %  
Walk-ins

4. How much "downtime" do you have in a typical work day? \_\_\_\_\_

How do you use this time? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Are you satisfied with the way the appointment and scheduling staff "book" your day? \_\_\_\_\_ Yes \_\_\_\_\_ NO

If no, explain: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

6. Do appointment and scheduling staff ever double-book your appointment time? \_\_\_\_\_ Yes \_\_\_\_\_ No

If yes, how do you handle this? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

7. How long do patients usually wait in the clinic to see you?

\_\_\_\_\_ Is this an acceptable amount of time, in your opinion?

\_\_\_\_\_ Yes \_\_\_\_\_ No

8. How do you handle active duty appointments and other triaging situations? \_\_\_\_\_

\_\_\_\_\_

9. Do you feel that the installation of the automated appointment and scheduling system has improved your efficiency, productivity, and the quality of care you provide? If so, what benefits have you realized as a result of this system?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

PATIENT TRACKING FORM

Specialty Clinic: Orthopedics \_\_\_\_\_ General Surgery \_\_\_\_\_

1. Date of call to Central Appointments for an appointment in Primary Care: \_\_\_\_\_
2. Date of appointment in Primary Care: \_\_\_\_\_
3. Date of contact with Orthopedics or General Surgery to request an appointment: \_\_\_\_\_
4. Date of appointment in either Orthopedics or General Surgery: \_\_\_\_\_

5. Between the date you visited Primary Care and the date you visited Orthopedics or General Surgery, were you referred to any other clinic or division of the hospital? Yes \_\_\_\_\_ No \_\_\_\_\_

6. (If "yes" to Question 5) What division(s) were you referred to and what were the dates of contact?

\_\_\_\_\_  
Division

\_\_\_\_\_  
Date

\_\_\_\_\_  
Division

\_\_\_\_\_  
Date

\_\_\_\_\_  
Division

\_\_\_\_\_  
Date

7. (If "yes" in Question 5) Do you feel that this referral(s) was appropriate? Yes \_\_\_\_\_ No \_\_\_\_\_  
If no, why not? \_\_\_\_\_

8. Were you satisfied with the time it took you to get an appointment with either Orthopedics or General Surgery? Yes \_\_\_\_\_ No \_\_\_\_\_

If no, explain: \_\_\_\_\_

9. Do you feel it would have been better to bypass Primary Care screening? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, why? \_\_\_\_\_

10. What recommendations would you make regarding the appointment and scheduling referral process?

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11. Do you have any other comments regarding the appointment and scheduling referral process?

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